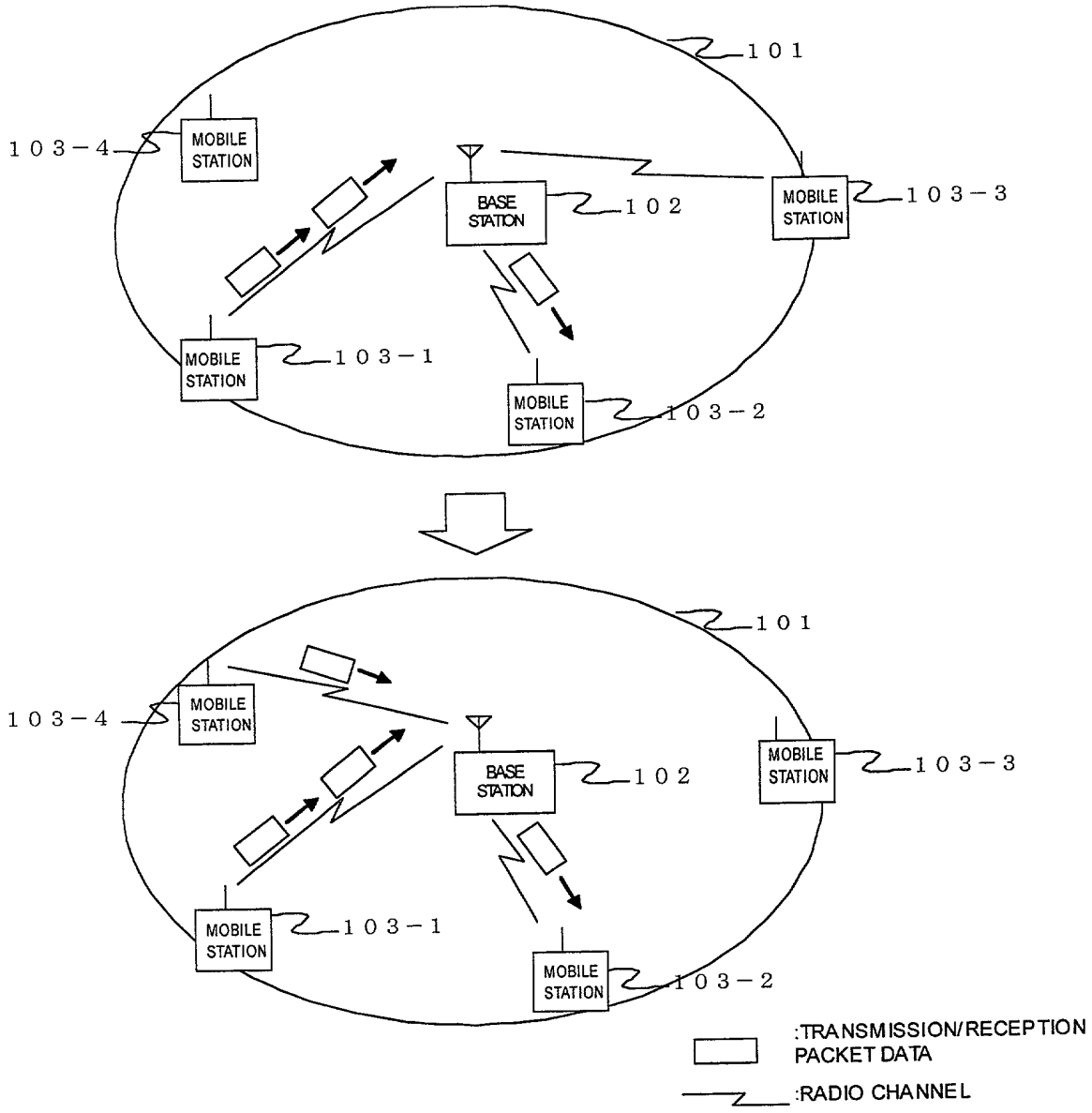
101
103-4
MOBILE STATION
BASE STATION
102
MOBILE STATION
103-3
MOBILE STATION
103-1
MOBILE STATION
103-2
101
103-4
MOBILE STATION
BASE STATION
102
MOBILE STATION
103-3
MOBILE STATION
103-1
MOBILE STATION
103-2
:TRANSMISSION/RECEPTION PACKET DATA
:RADIO CHANNEL

FIG. 1

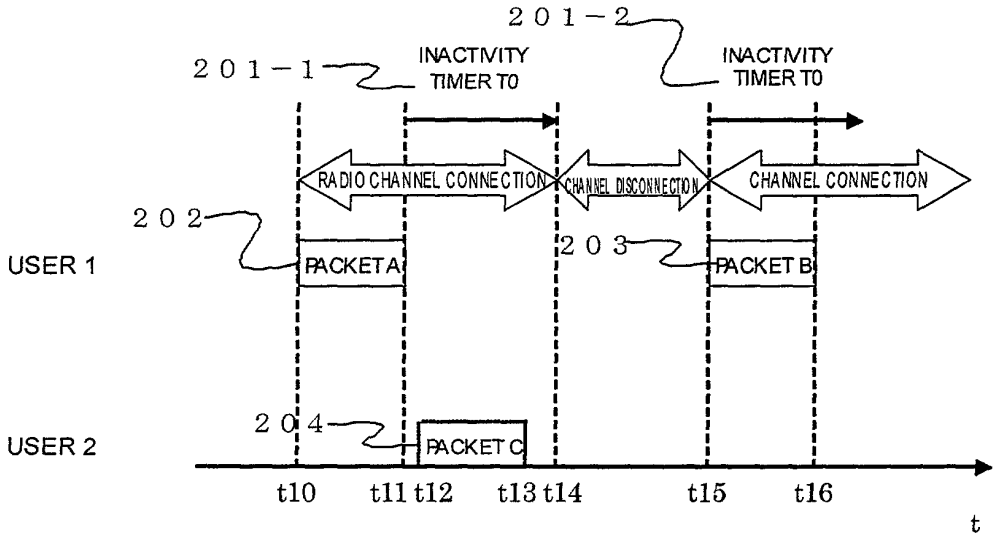
201－2
201－1
INACTIVITY TIMER T0
INACTIVITY TIMER T0
RADIO CHANNEL CONNECTION
CHANNEL DISCONNECTION
CHANNEL CONNECTION
202
203
USER 1
PACKET A
PACKET B
204
USER 2
PACKET C
t10
t11 t12
t13 t14
t15
t16
t

FIG. 2

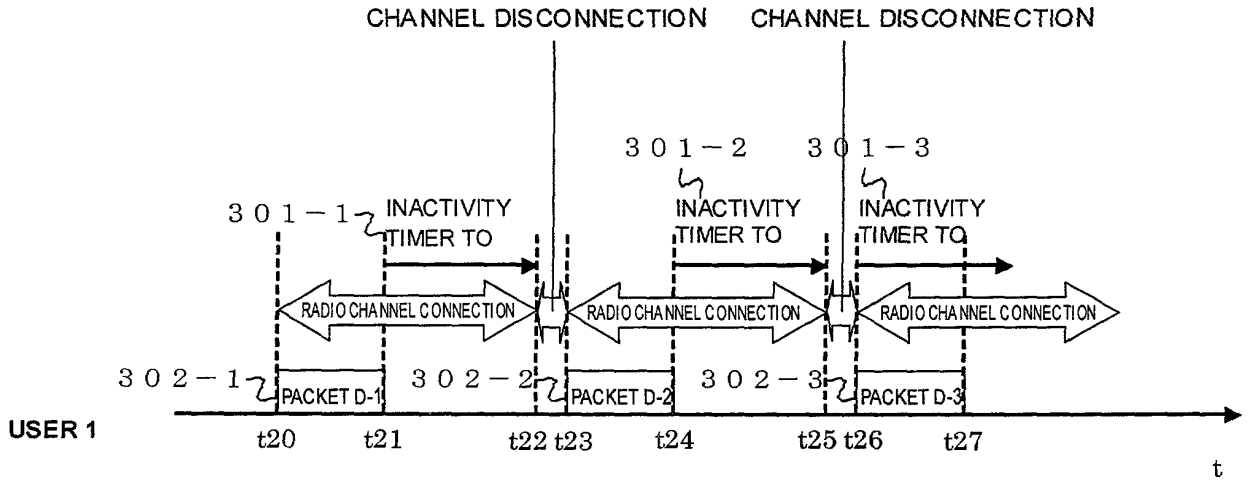
CHANNEL DISCONNECTION
CHANNEL DISCONNECTION
301－2
301－3
301－1
INACTIVITY TIMER TO
INACTIVITY TIMER TO
INACTIVITY TIMER TO
RADIO CHANNEL CONNECTION
RADIO CHANNEL CONNECTION
RADIO CHANNEL CONNECTION
302－1
302－2
302－3
PACKET D-1
PACKET D-2
PACKET D-3
USER 1
t20
t21
t22 t23
t24
t25 t26
t27
t

FIG. 3

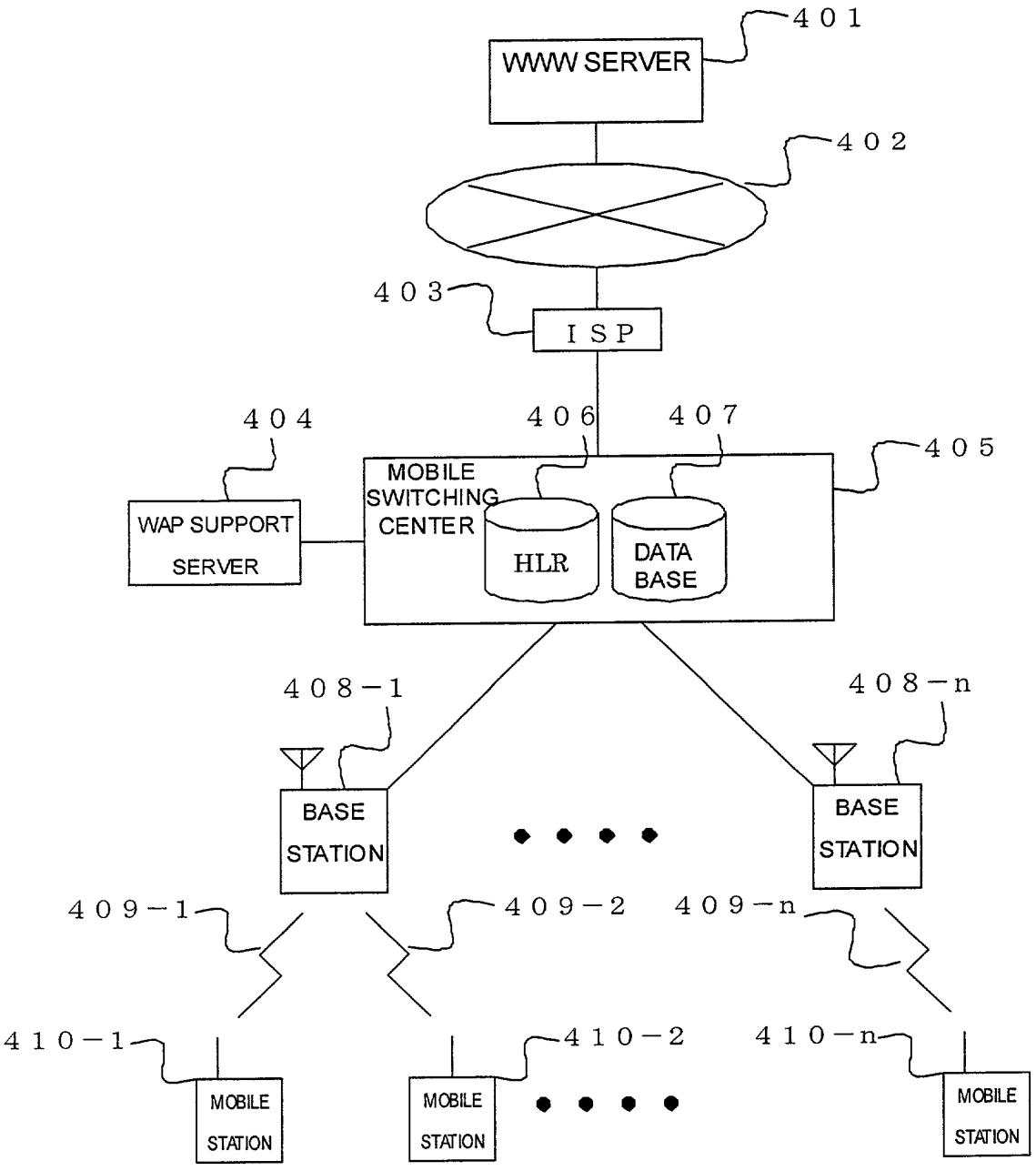
401
WWW SERVER
402
403
ISP
404
406
407
405
MOBILE SWITCHING CENTER
WAP SUPPORT SERVER
HLR
DATA BASE
408-1
408-n
BASE STATION
BASE STATION
409-1
409-2
409-n
410-1
410-2
410-n
MOBILE STATION
MOBILE STATION
MOBILE STATION

FIG. 4

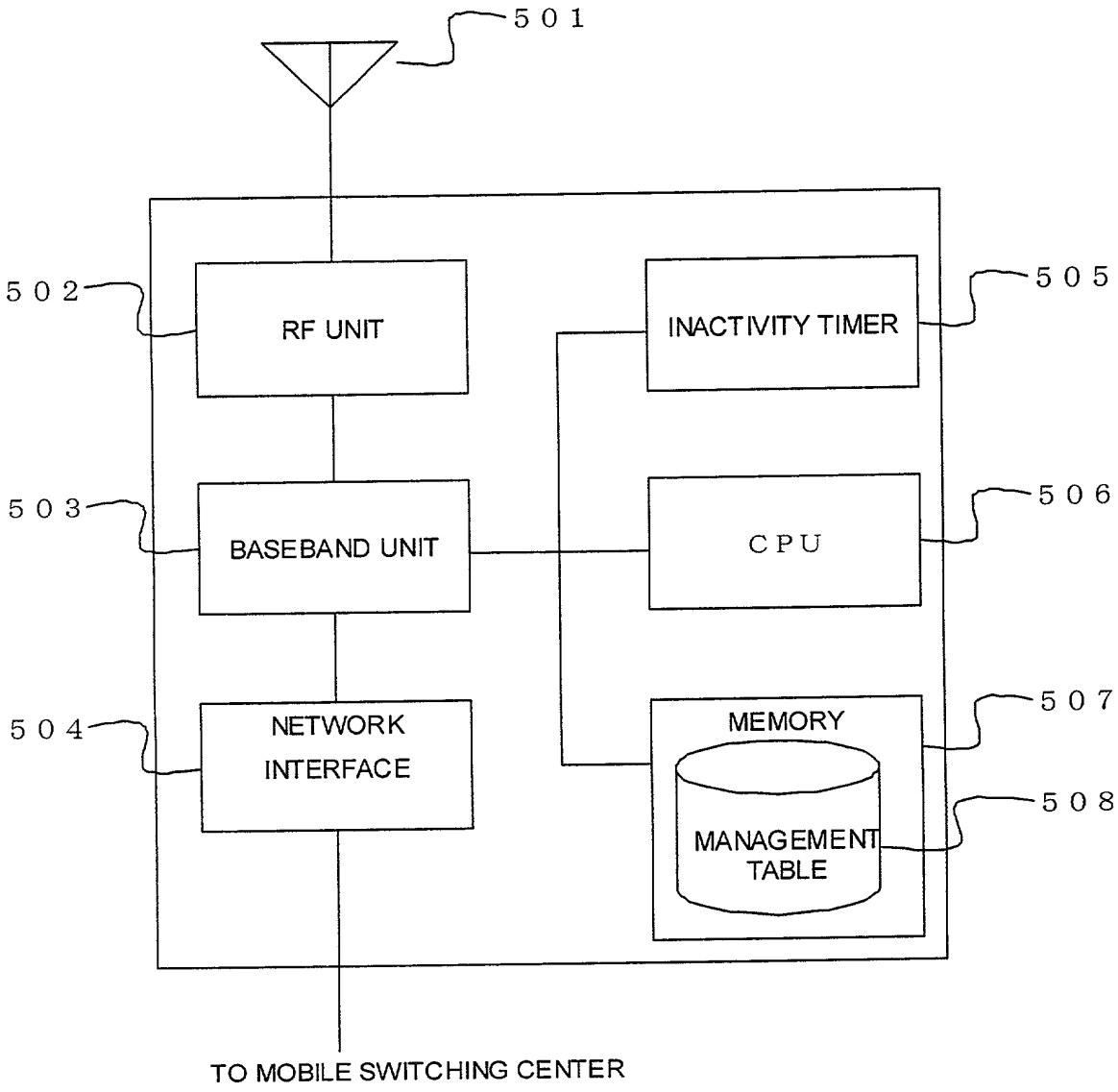
501
502
RF UNIT
503
BASEBAND UNIT
504
NETWORK
INTERFACE
505
INACTIVITY TIMER
506
CPU
507
MEMORY
508
MANAGEMENT
TABLE
TO MOBILE SWITCHING CENTER

FIG. 5

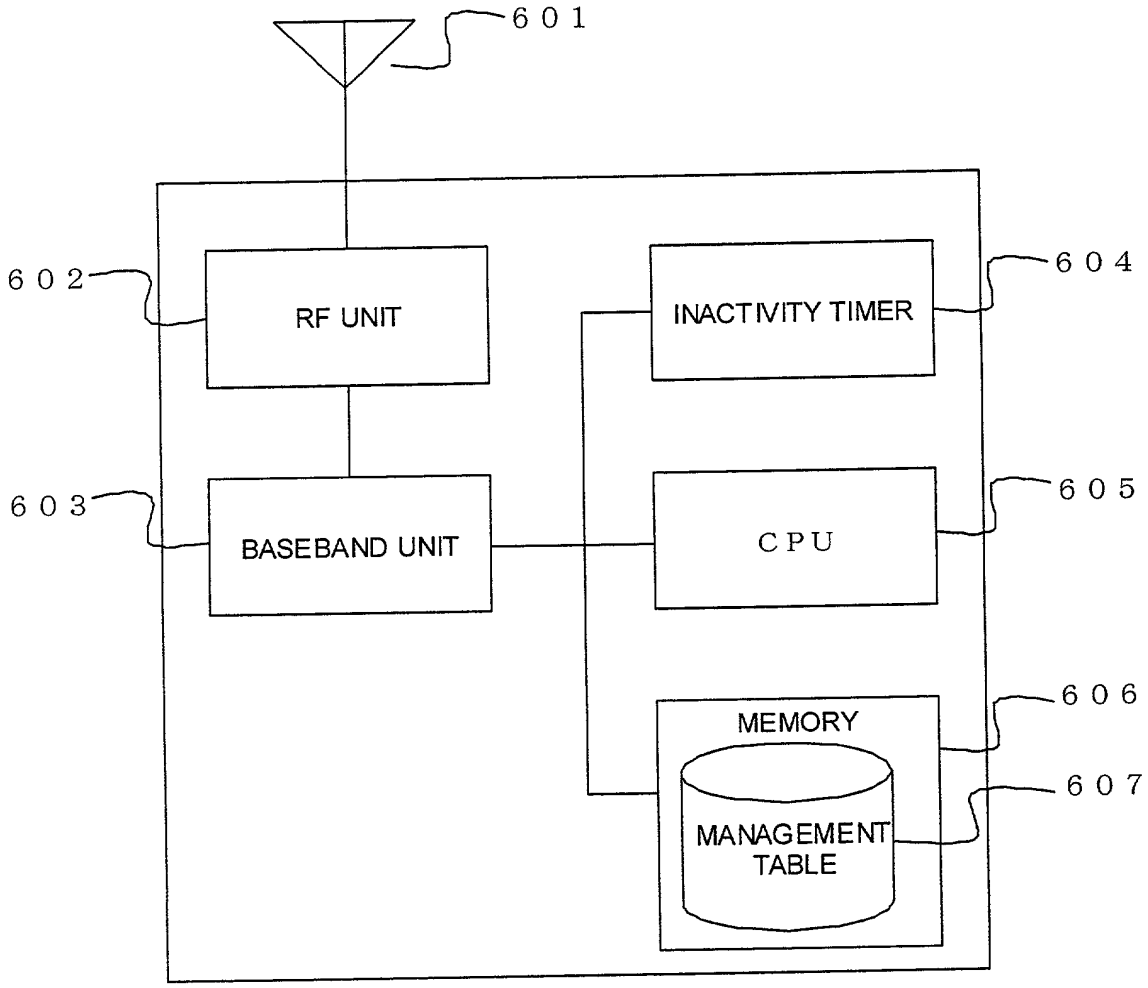
601
602
RF UNIT
603
BASEBAND UNIT
604
INACTIVITY TIMER
605
CPU
606
MEMORY
607
MANAGEMENT TABLE

FIG. 6

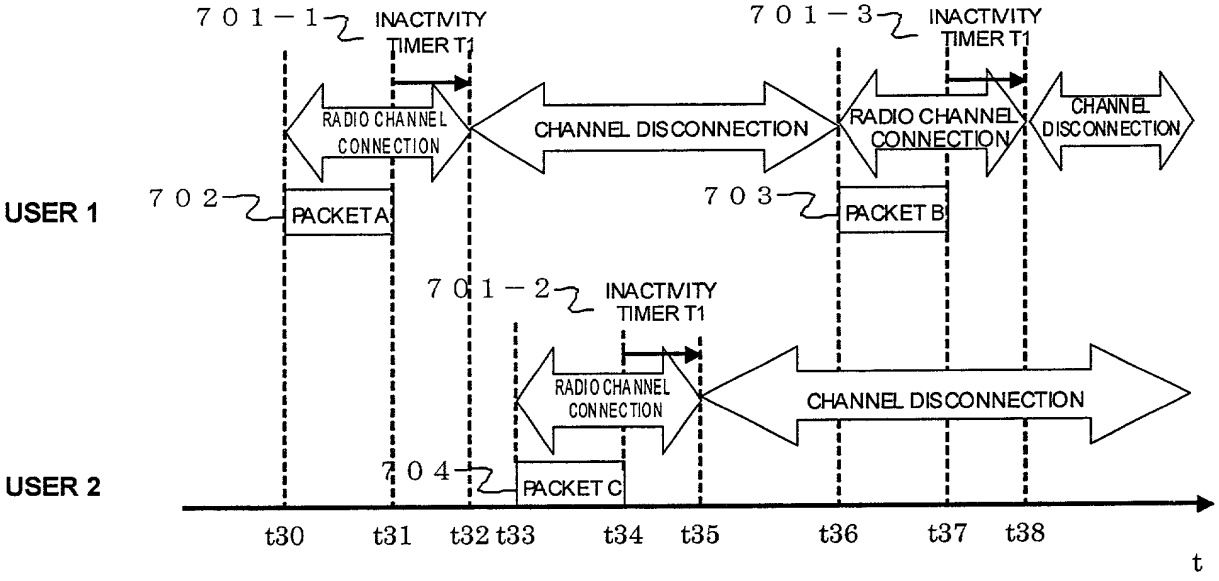
701－1
INACTIVITY TIMER T1
701－3
INACTIVITY TIMER T1
RADIO CHANNEL CONNECTION
CHANNEL DISCONNECTION
RADIO CHANNEL CONNECTION
CHANNEL DISCONNECTION
USER 1
702
PACKET A
703
PACKET B
701－2
INACTIVITY TIMER T1
RADIO CHANNEL CONNECTION
CHANNEL DISCONNECTION
USER 2
704
PACKET C
t30
t31
t32
t33
t34
t35
t36
t37
t38
t

FIG. 7

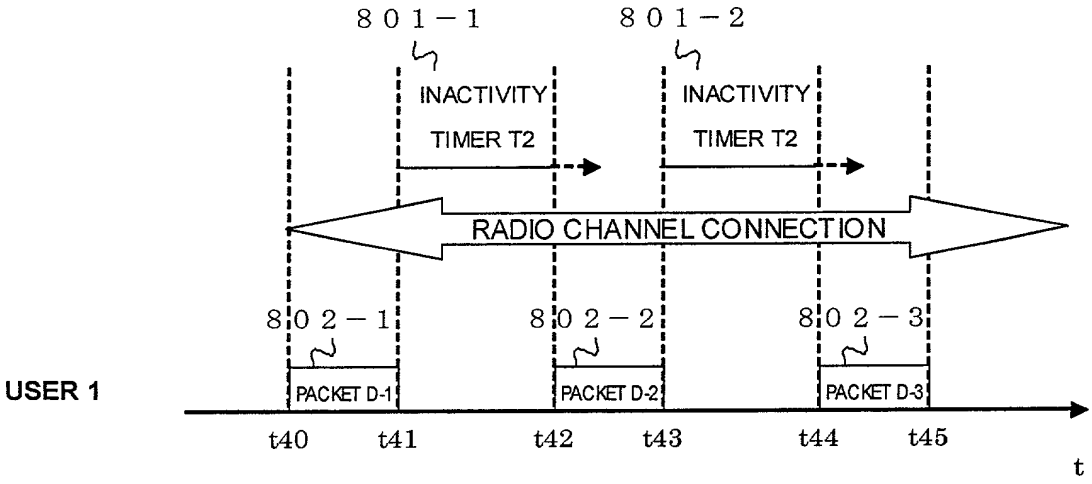
801－1
801－2
INACTIVITY TIMER T2
INACTIVITY TIMER T2
RADIO CHANNEL CONNECTION
802－1
802－2
802－3
USER 1
PACKET D-1
PACKET D-2
PACKET D-3
t40
t41
t42
t43
t44
t45
t

FIG. 8

CONNECTION DESTINATION TYPE	CONNECTION DESTINATION TYPE FIELD VALUE	INACTIVITY TIMER VALUE
DEFAULT	–	60 SECONDS
WWW SERVER	0	100 SECONDS
WAP SUPPORT SERVER	1	30 SECONDS

FIG. 9

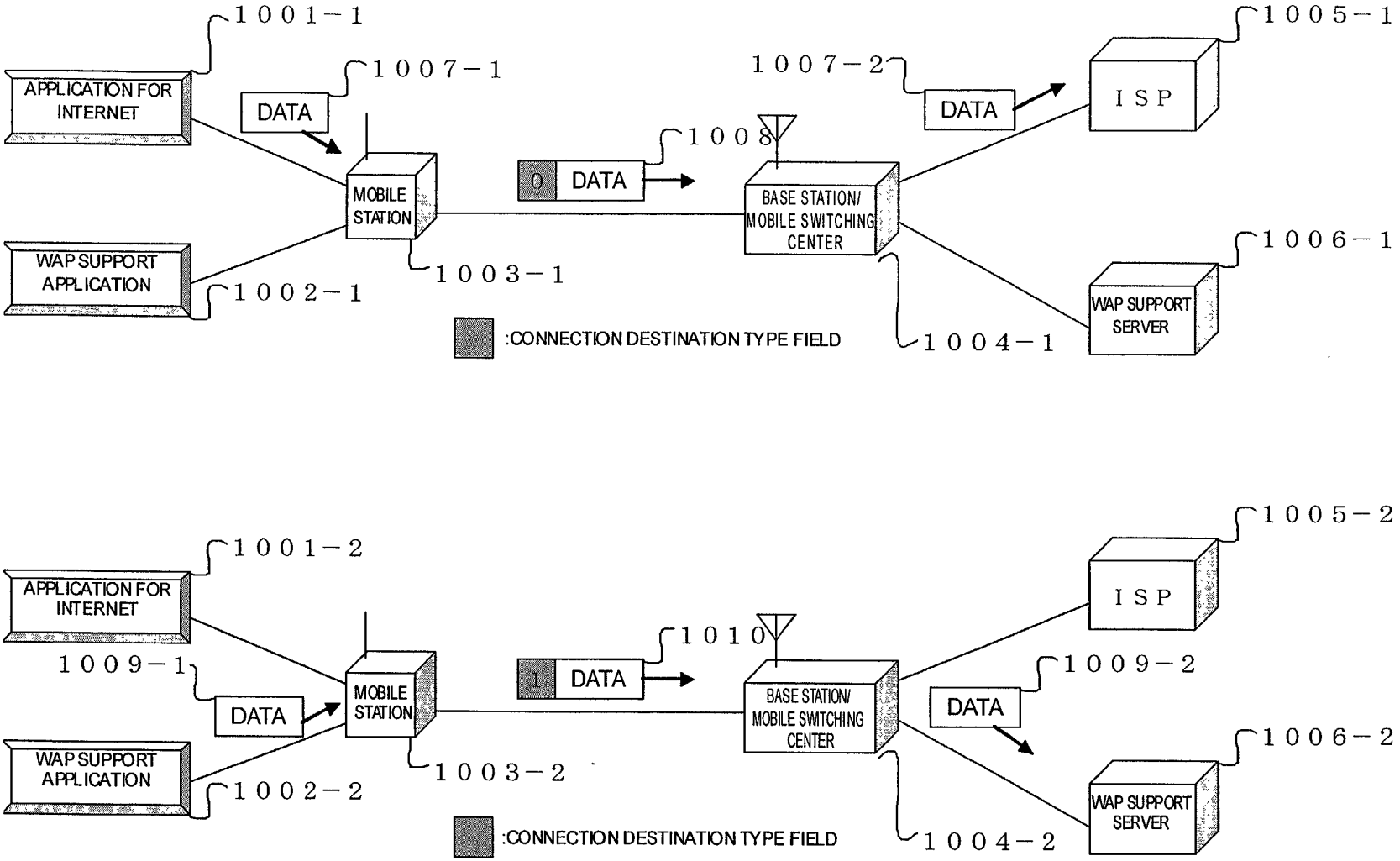
1001-1
APPLICATION FOR INTERNET
1007-1
DATA
MOBILE STATION
1003-1
WAP SUPPORT APPLICATION
1002-1
0 DATA
1008
BASE STATION/ MOBILE SWITCHING CENTER
1004-1
1007-2
DATA
ISP
1005-1
WAP SUPPORT SERVER
1006-1
:CONNECTION DESTINATION TYPE FIELD
1001-2
APPLICATION FOR INTERNET
1009-1
DATA
MOBILE STATION
1003-2
WAP SUPPORT APPLICATION
1002-2
1 DATA
1010
BASE STATION/ MOBILE SWITCHING CENTER
1004-2
DATA
1009-2
ISP
1005-2
WAP SUPPORT SERVER
1006-2
:CONNECTION DESTINATION TYPE FIELD

FIG. 10

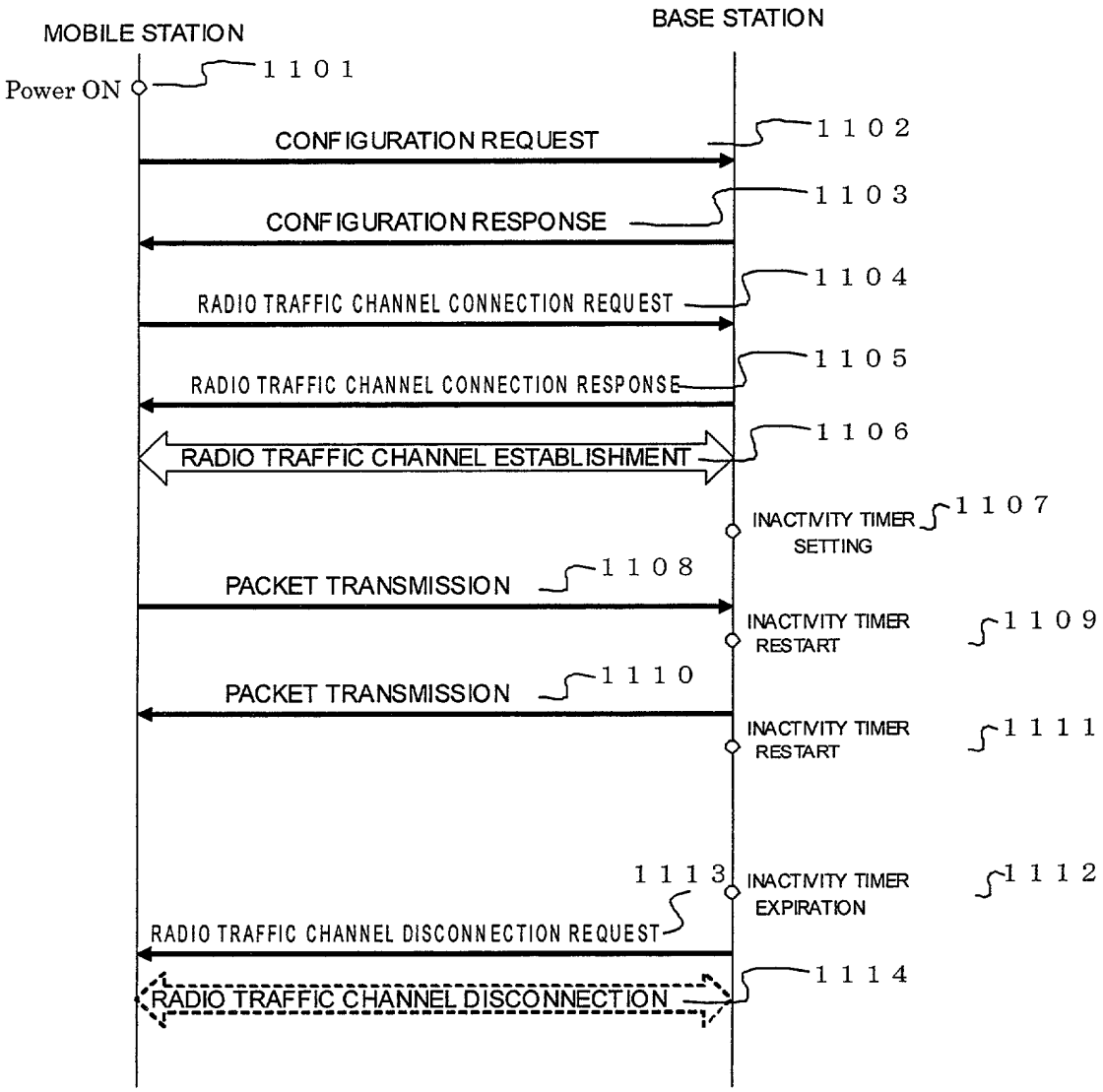
MOBILE STATION
BASE STATION
Power ON
1101
CONFIGURATION REQUEST
1102
CONFIGURATION RESPONSE
1103
RADIO TRAFFIC CHANNEL CONNECTION REQUEST
1104
RADIO TRAFFIC CHANNEL CONNECTION RESPONSE
1105
RADIO TRAFFIC CHANNEL ESTABLISHMENT
1106
INACTIVITY TIMER SETTING
1107
PACKET TRANSMISSION
1108
INACTIVITY TIMER RESTART
1109
PACKET TRANSMISSION
1110
INACTIVITY TIMER RESTART
1111
1113
INACTIVITY TIMER EXPIRATION
1112
RADIO TRAFFIC CHANNEL DISCONNECTION REQUEST
RADIO TRAFFIC CHANNEL DISCONNECTION
1114

FIG. 11

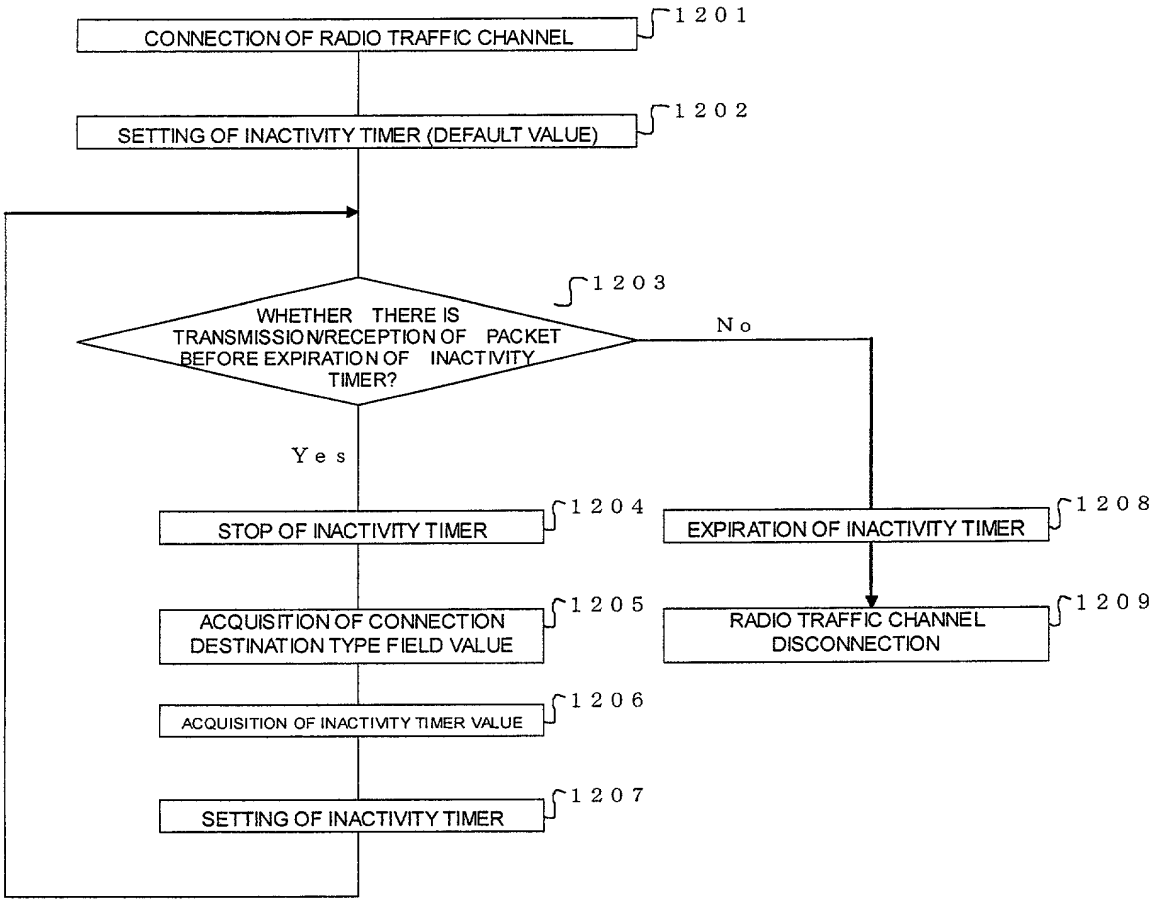
CONNECTION OF RADIO TRAFFIC CHANNEL
1201
SETTING OF INACTIVITY TIMER (DEFAULT VALUE)
1202
WHETHER THERE IS TRANSMISSION/RECEPTION OF PACKET BEFORE EXPIRATION OF INACTIVITY TIMER?
1203
No
Yes
STOP OF INACTIVITY TIMER
1204
ACQUISITION OF CONNECTION DESTINATION TYPE FIELD VALUE
1205
ACQUISITION OF INACTIVITY TIMER VALUE
1206
SETTING OF INACTIVITY TIMER
1207
EXPIRATION OF INACTIVITY TIMER
1208
RADIO TRAFFIC CHANNEL DISCONNECTION
1209

FIG. 12

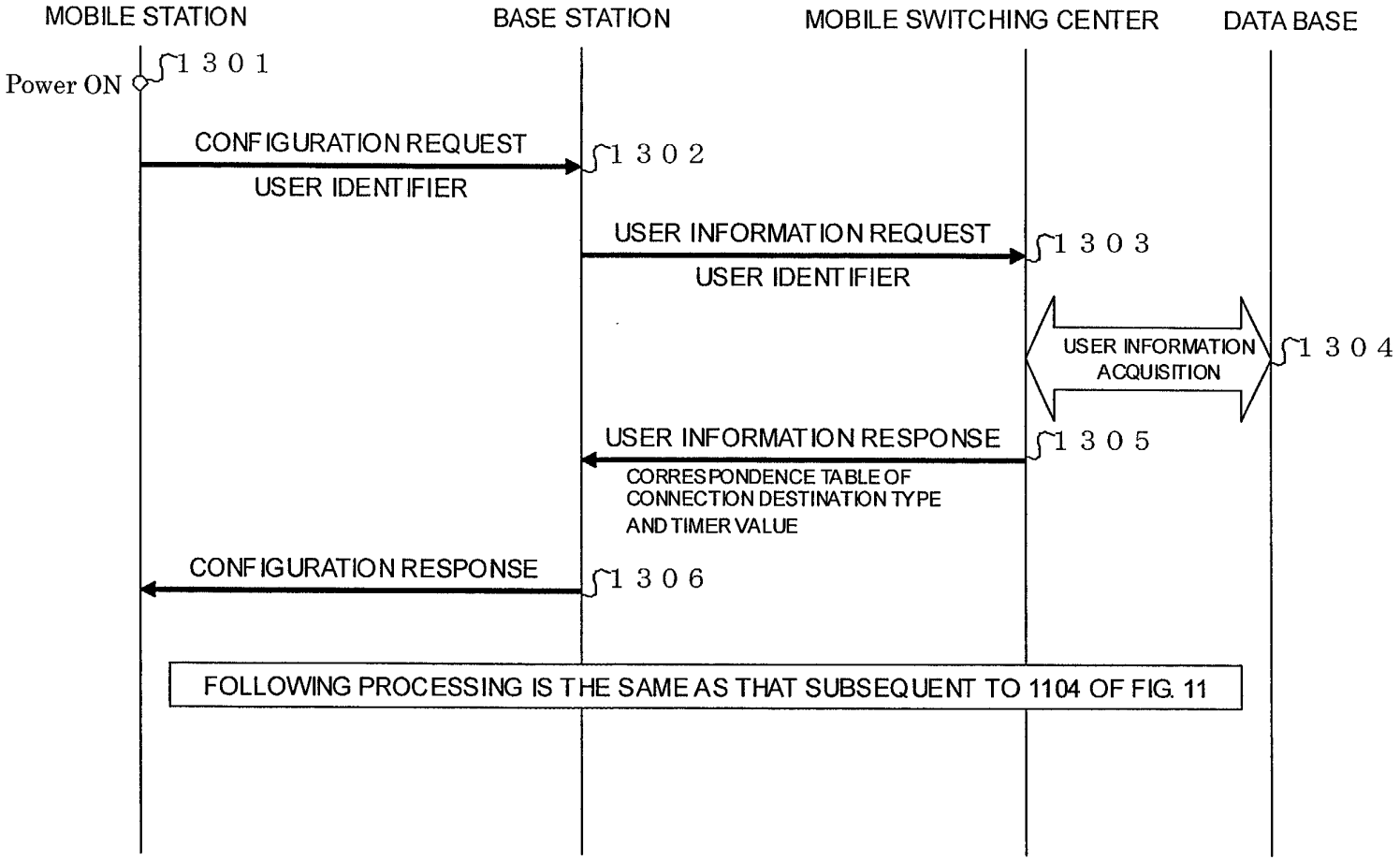
MOBILE STATION
BASE STATION
MOBILE SWITCHING CENTER
DATA BASE
Power ON
1301
CONFIGURATION REQUEST
USER IDENTIFIER
1302
USER INFORMATION REQUEST
USER IDENTIFIER
1303
USER INFORMATION ACQUISITION
1304
USER INFORMATION RESPONSE
CORRESPONDENCE TABLE OF CONNECTION DESTINATION TYPE AND TIMER VALUE
1305
CONFIGURATION RESPONSE
1306
FOLLOWING PROCESSING IS THE SAME AS THAT SUBSEQUENT TO 1104 OF FIG. 11

FIG. 13

1401

USER IDENTIFIER	CONNECTION DESTINATION TYPE	CONNECTION DESTINATION TYPE FIELD VALUE	INACTIVITY TIMER VALUE
A	DEFAULT	—	60 SECONDS
	WWW SERVER	0	80 SECONDS
	WAP SUPPORT SERVER	1	20 SECONDS
B	DEFAULT	—	45 SECONDS
	WWW SERVER	0	150 SECONDS
	WAP SUPPORT SERVER	1	60 SECONDS
C	DEFAULT	—	60 SECONDS
	WWW SERVER	0	200 SECONDS
	WAP SUPPORT SERVER	1	25 SECONDS

FIG. 14

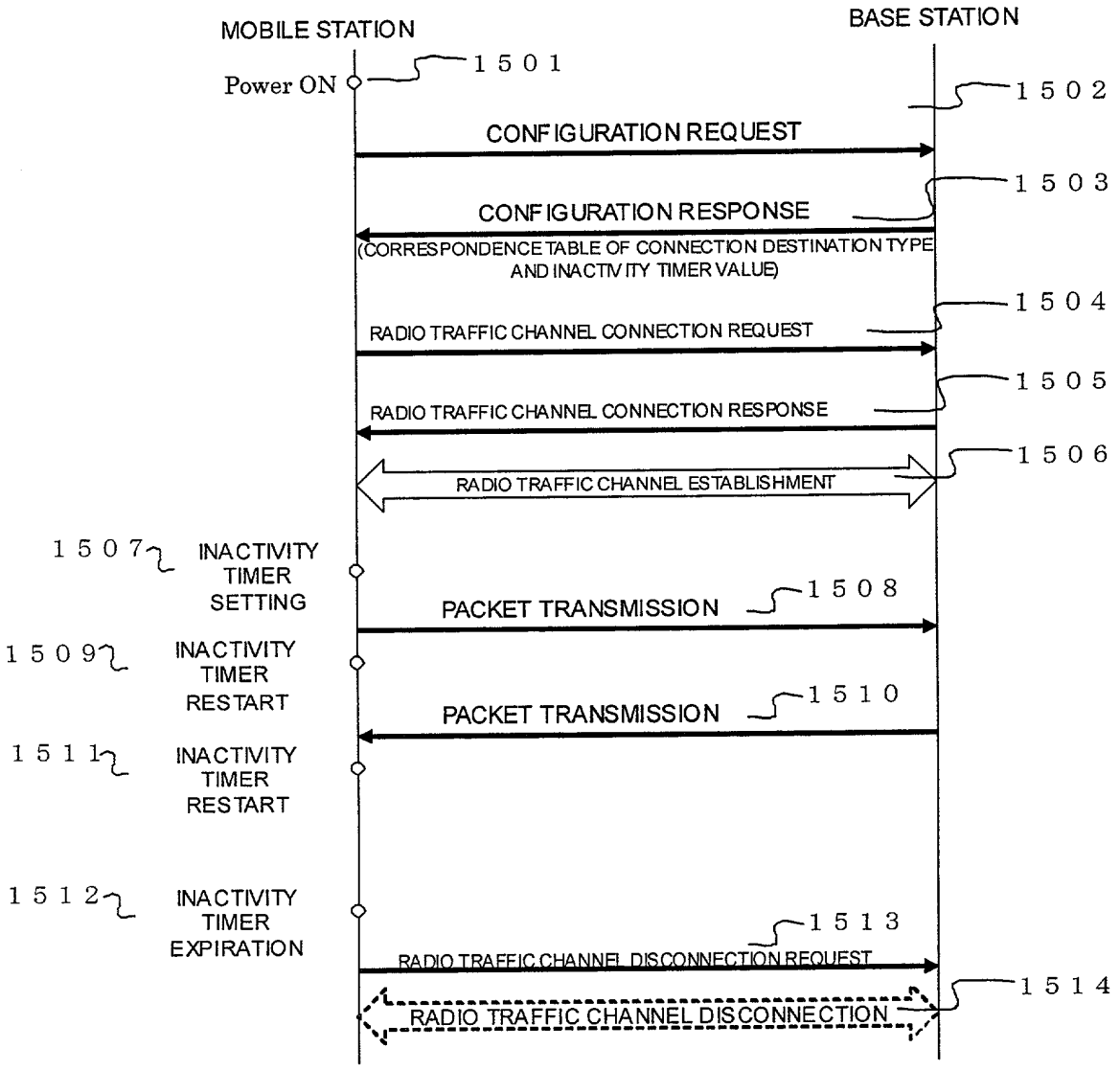
MOBILE STATION
BASE STATION
Power ON
1501
1502
CONFIGURATION REQUEST
1503
CONFIGURATION RESPONSE
(CORRESPONDENCE TABLE OF CONNECTION DESTINATION TYPE AND INACTIVITY TIMER VALUE)
1504
RADIO TRAFFIC CHANNEL CONNECTION REQUEST
1505
RADIO TRAFFIC CHANNEL CONNECTION RESPONSE
1506
RADIO TRAFFIC CHANNEL ESTABLISHMENT
1507
INACTIVITY TIMER SETTING
1508
PACKET TRANSMISSION
1509
INACTIVITY TIMER RESTART
1510
PACKET TRANSMISSION
1511
INACTIVITY TIMER RESTART
1512
INACTIVITY TIMER EXPIRATION
1513
RADIO TRAFFIC CHANNEL DISCONNECTION REQUEST
1514
RADIO TRAFFIC CHANNEL DISCONNECTION

FIG. 15

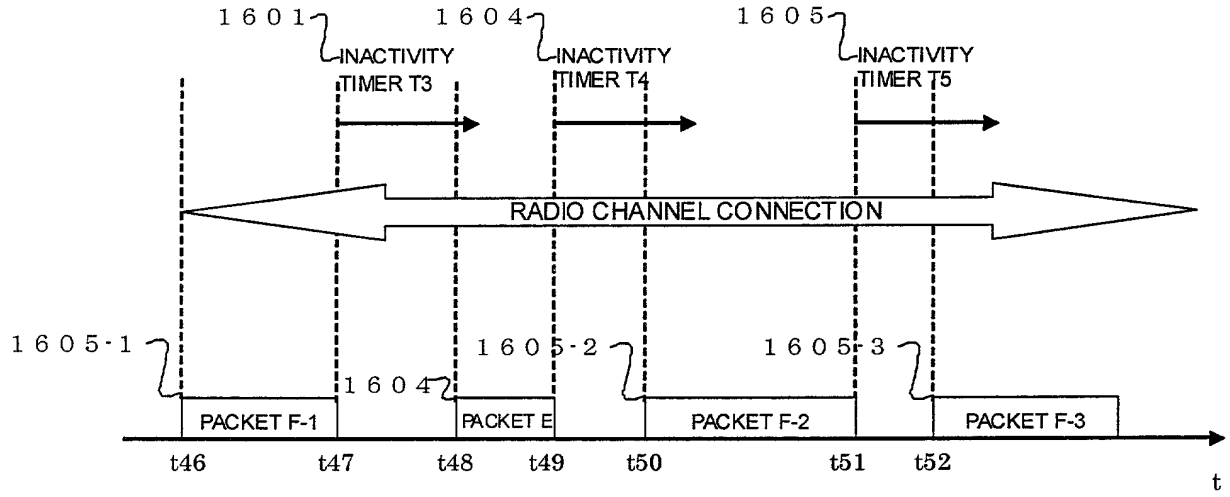
1601
1604
1605
INACTIVITY TIMER T3
INACTIVITY TIMER T4
INACTIVITY TIMER T5
RADIO CHANNEL CONNECTION
1605-1
1604
1605-2
1605-3
PACKET F-1
PACKET E
PACKET F-2
PACKET F-3
t46
t47
t48
t49
t50
t51
t52
t

FIG. 16

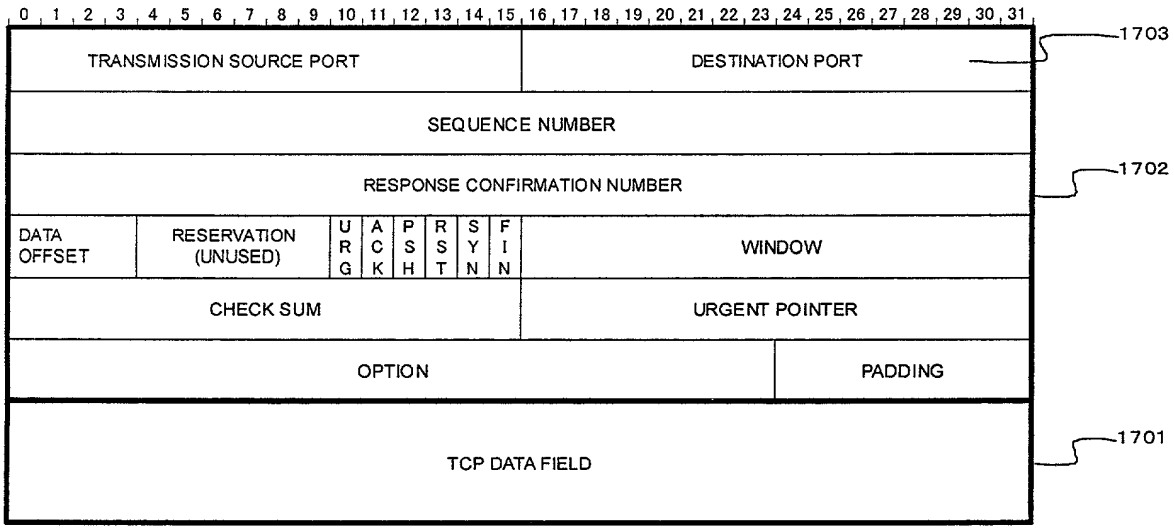
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
TRANSMISSION SOURCE PORT
DESTINATION PORT
SEQUENCE NUMBER
RESPONSE CONFIRMATION NUMBER
DATA OFFSET
RESERVATION (UNUSED)
URG
ACK
PSH
RST
SYN
FIN
WINDOW
CHECK SUM
URGENT POINTER
OPTION
PADDING
TCP DATA FIELD
1703
1702
1701

FIG. 17

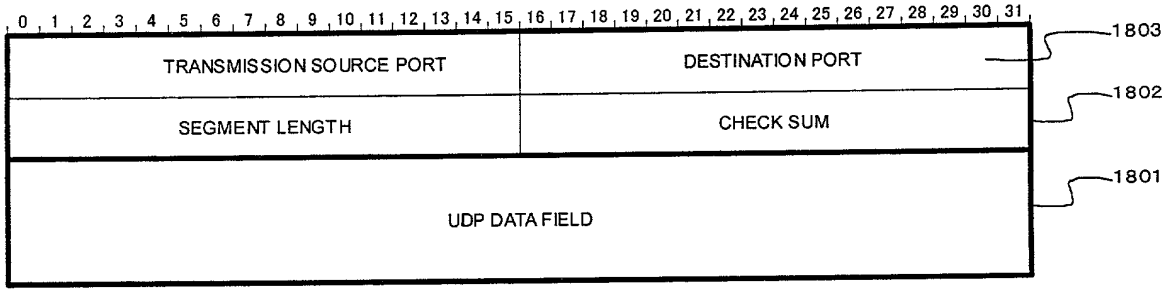

FIG. 18

1901

PORT NUMBER	APPLICATION TYPE	INACTIVITY TIMER VALUE
DEFAULT		60 SECONDS
21	f t p	100 SECONDS
80	h t t p	100 SECONDS
.	.	.
.	.	.
.	.	.
OTHER THAN WELL-KNOWN PORT NUMBER		30 SECONDS

FIG. 19

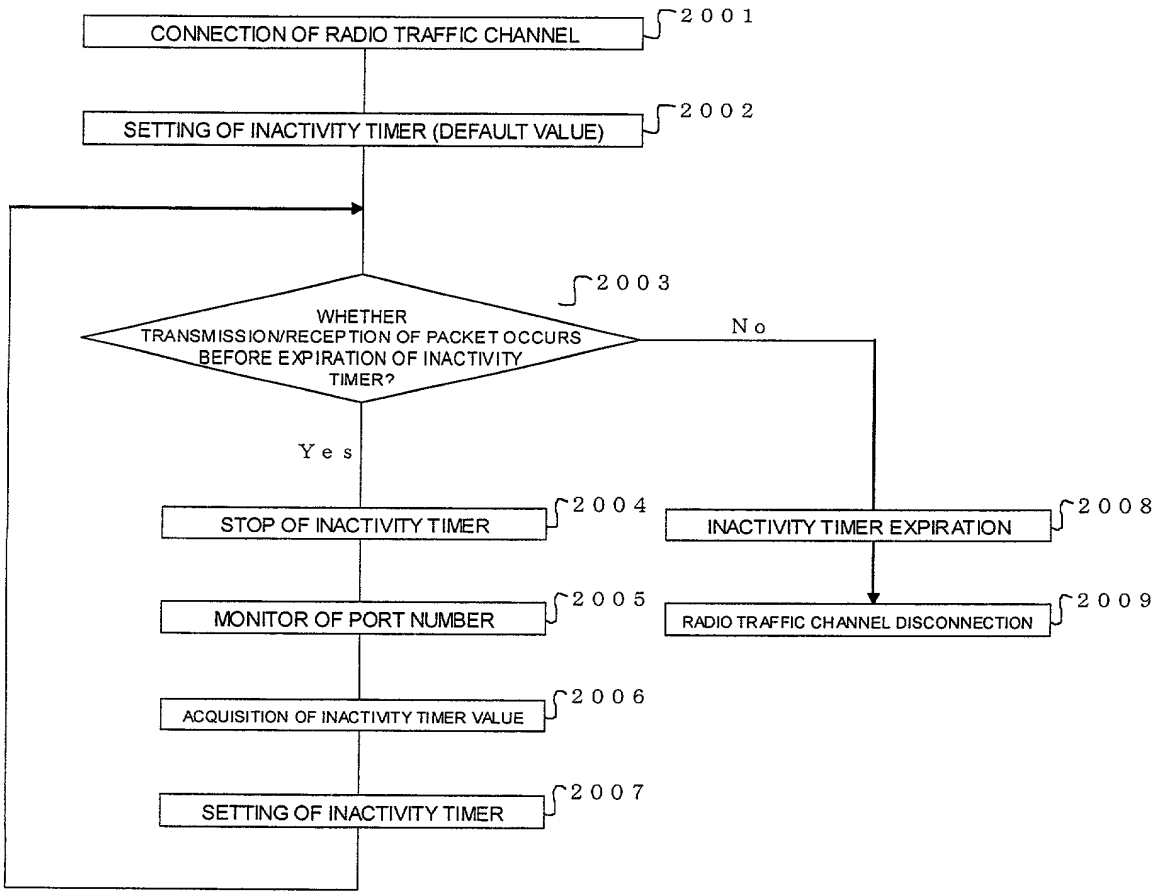
CONNECTION OF RADIO TRAFFIC CHANNEL
2001
SETTING OF INACTIVITY TIMER (DEFAULT VALUE)
2002
2003
WHETHER TRANSMISSION/RECEPTION OF PACKET OCCURS BEFORE EXPIRATION OF INACTIVITY TIMER?
No
Yes
STOP OF INACTIVITY TIMER
2004
MONITOR OF PORT NUMBER
2005
ACQUISITION OF INACTIVITY TIMER VALUE
2006
SETTING OF INACTIVITY TIMER
2007
INACTIVITY TIMER EXPIRATION
2008
RADIO TRAFFIC CHANNEL DISCONNECTION
2009

FIG. 20

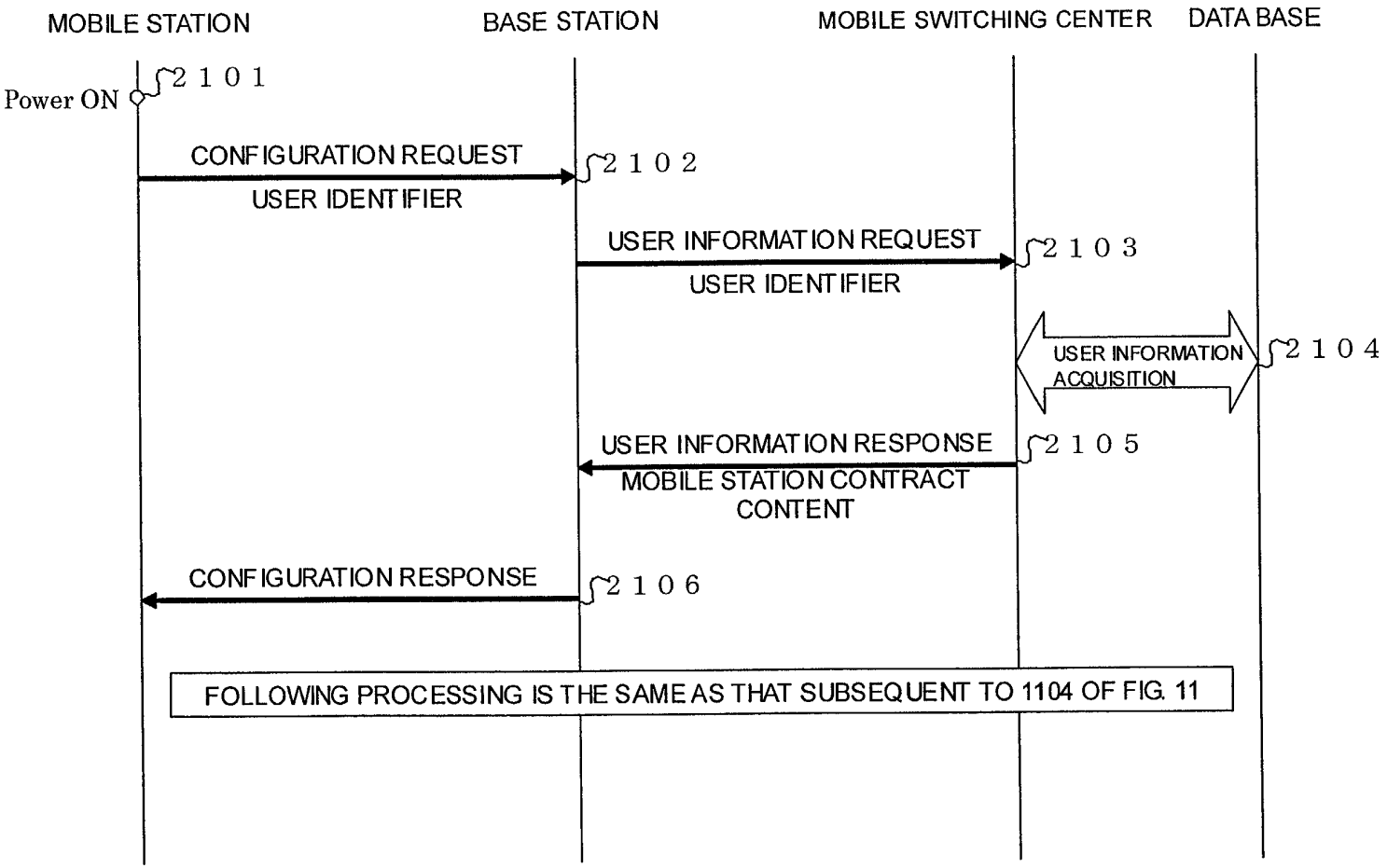
MOBILE STATION
BASE STATION
MOBILE SWITCHING CENTER
DATA BASE
Power ON
2101
CONFIGURATION REQUEST
USER IDENTIFIER
2102
USER INFORMATION REQUEST
USER IDENTIFIER
2103
USER INFORMATION ACQUISITION
2104
USER INFORMATION RESPONSE
MOBILE STATION CONTRACT CONTENT
2105
CONFIGURATION RESPONSE
2106
FOLLOWING PROCESSING IS THE SAME AS THAT SUBSEQUENT TO 1104 OF FIG. 11

FIG. 21

2201

PAST COMMUNICATION AMOUNT	INACTIVITY TIMER VALUE
DEFAULT	60 SECONDS
LESS THAN 3000 PACKETS	60 SECONDS
NOT LESS THAN 3000 PACKETS	100 SECONDS
NOT LESS THAN 10000 PACKETS	200 SECONDS

FIG. 22

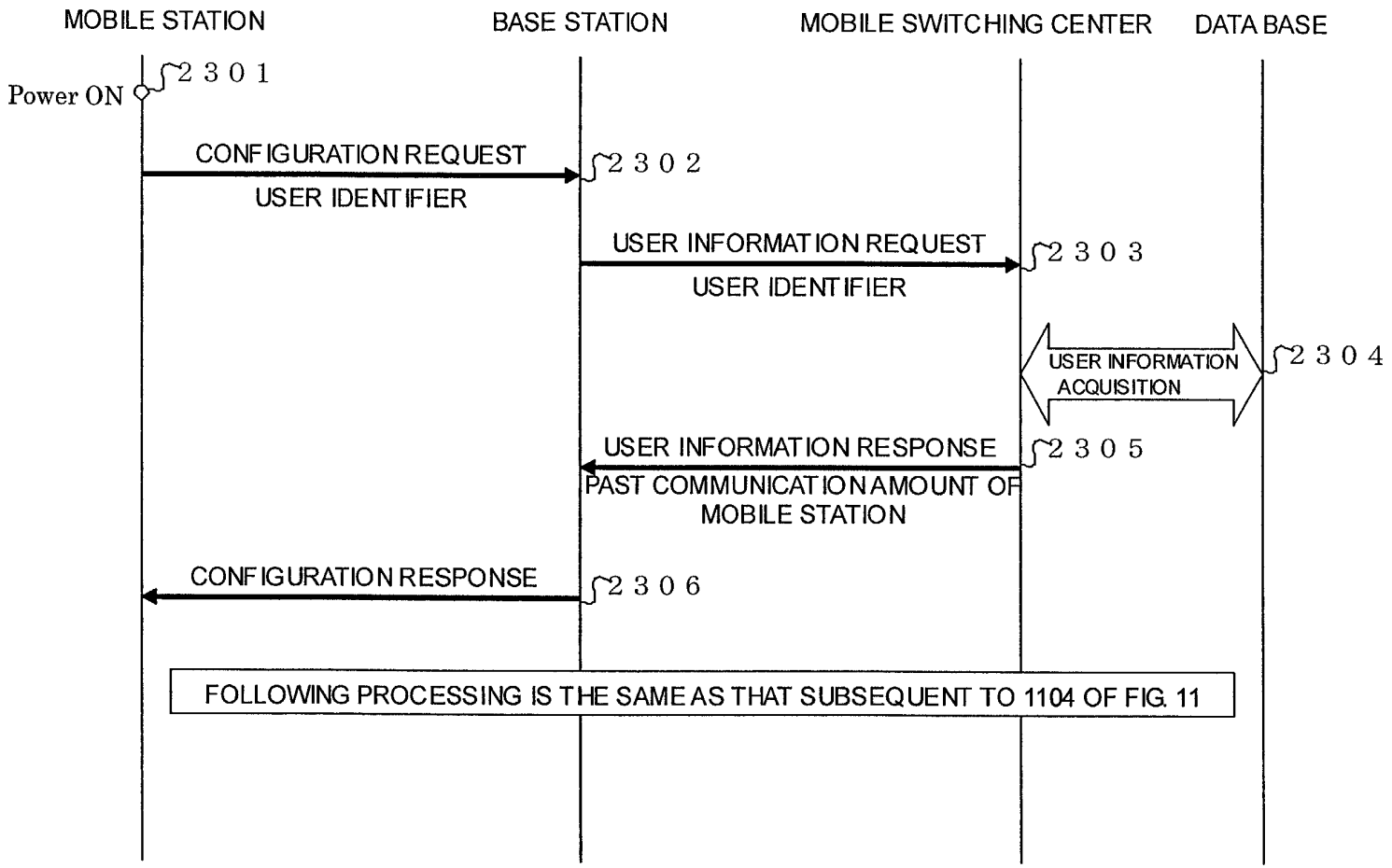
MOBILE STATION
BASE STATION
MOBILE SWITCHING CENTER
DATA BASE
Power ON
2301
CONFIGURATION REQUEST
USER IDENTIFIER
2302
USER INFORMATION REQUEST
USER IDENTIFIER
2303
USER INFORMATION ACQUISITION
2304
USER INFORMATION RESPONSE
PAST COMMUNICATION AMOUNT OF MOBILE STATION
2305
CONFIGURATION RESPONSE
2306
FOLLOWING PROCESSING IS THE SAME AS THAT SUBSEQUENT TO 1104 OF FIG. 11

FIG. 23

2401

PAST COMMUNICATION CONTENT	INACTIVITY TIMER VALUE
DEFAULT	60 SECONDS
OCCASIONS OF WAP CONNECTION ARE LARGER THAN INTERNET CONNECTION	30 SECONDS
OCCASIONS OF INTERNET CONNECTION ARE LARGER THAN WAP CONNECTION	100 SECONDS

FIG. 24

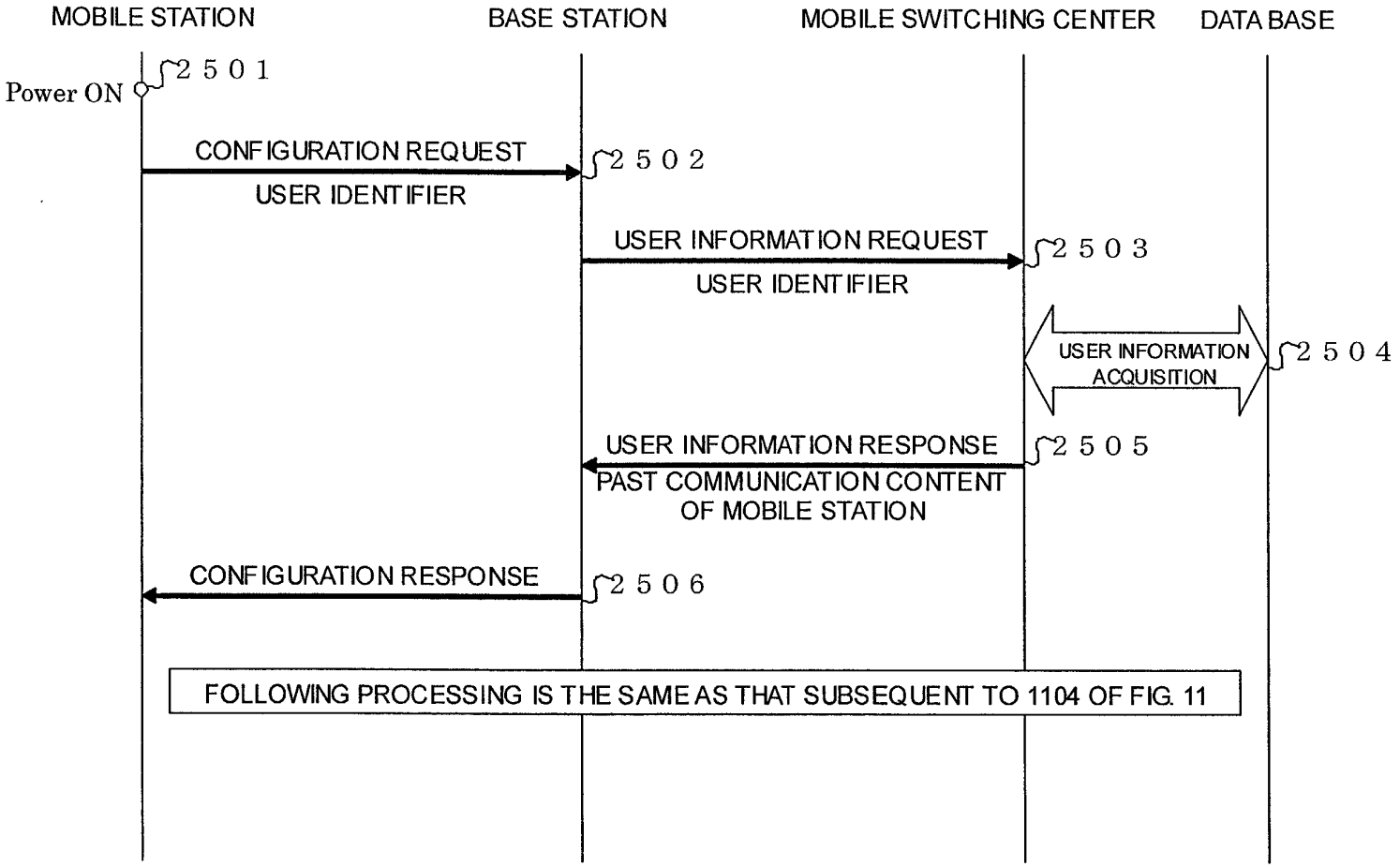
MOBILE STATION
BASE STATION
MOBILE SWITCHING CENTER
DATA BASE
Power ON
2501
CONFIGURATION REQUEST
USER IDENTIFIER
2502
USER INFORMATION REQUEST
USER IDENTIFIER
2503
USER INFORMATION ACQUISITION
2504
USER INFORMATION RESPONSE
PAST COMMUNICATION CONTENT OF MOBILE STATION
2505
CONFIGURATION RESPONSE
2506
FOLLOWING PROCESSING IS THE SAME AS THAT SUBSEQUENT TO 1104 OF FIG. 11

FIG. 25

2601

LOW TRAFFIC	INACTIVITY TIMER VALUE
INTERNET	100 SECOND
WAP	30 SECONDS

HIGH TRAFFIC	INACTIVITY TIMER VALUE
INTERNET	50 SECONDS
WAP	20 SECONDS

FIG. 26